

Birthweight and large for gestational age trends in non-diabetic women with three consecutive term deliveries



Liran Hirsch^{1,3}, Eran Ashwal^{1,3}, Nir Melamed³, Amir Aviram^{1,3}, Rinat Gabbay-Benziv^{2,3}, Eran Hadar^{2,3}, Arnon Wiznitzer^{2,3}, Yariv Yogeve^{1,3}

¹Lis Maternity Hospital, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

²Helen Schneider Hospital for Women, Rabin Medical Center, Petah-Tikva

³Sackler Faculty of Medicine, Tel-Aviv University, Ramat-Aviv, Israel

Objective

- To assess birthweight (BW) trends and the rate of large for gestational age (LGA) in women in their 3rd delivery according to BW in the first (P1) and second (P2) deliveries.

Main Results

1) Of the 121,728 deliveries during the study period, 3,521 women (10,563 deliveries (8.6%) met inclusion criteria.

2) Mean BW-centile in the 1st, 2nd and 3rd deliveries were 47.2±26.3, 58.3±25.8 and 61.5±24.7, respectively (p<0.001).

3) While 45.9% women had their maximal BW-centile in the 3rd delivery, only 16.5% had it in the 1st delivery (p<0.001).

4) In multivariate analysis, adjusted for maternal age, and previous LGA the rate of LGA in the 3rd delivery was increased as the number of previous LGA deliveries in a dose dependent pattern.

Moreover, the order of previous LGA deliveries in women with only single previous LGA delivery also affected the rate of LGA in the 3rd delivery – compared to the reference group of women with no LGA at their 1st (P1) and 2nd (P2) delivery, the adjusted odds ratio (OR) for LGA in the 3rd delivery was 4.24 (CI=2.81-6.40) for P1_LGA+/P2_LGA-, 5.22 (4.09-6.65) for P1_LGA-/P2_LGA+, and 10.35 (6.74-15.90) for P1_LGA+/P2_LGA+ (P<0.001).

Materials & Methods

- A retrospective cohort study of all women who delivered their first three consecutive deliveries (P1-P3) in a single tertiary medical center (Rabin Medical Center, 1994-2013).
- Only non-diabetic women with term (≥37 weeks) singleton deliveries in all first 3 deliveries were included.
- BW-centile (according to local gender- and gestational age specific birth curves) trends between deliveries was assessed.
- In addition, the rate of LGA (≥90thcentile) in the 3rd delivery was assessed according to the presence, marked as (+) or absence, marked as (-) of LGA in previous deliveries.
- Pregnancies complicated by multiple gestations, preterm delivery (<37 weeks), preeclampsia, chronic or gestational hypertension or fetal anomalies were excluded.

Figures

Figure 1: The incidence of delivery order according to birthweight centile order throughout 3 consecutive deliveries. Each line represents a specific birth order according to the birthweight centile, i.e. the green line represent delivering the highest birthweight centile in the 1st delivery, followed by intermediate birthweight centile in the 2nd delivery followed by delivery of the lowest birthweight centile in the 3rd delivery - the incidence of this scenario is 7.3%

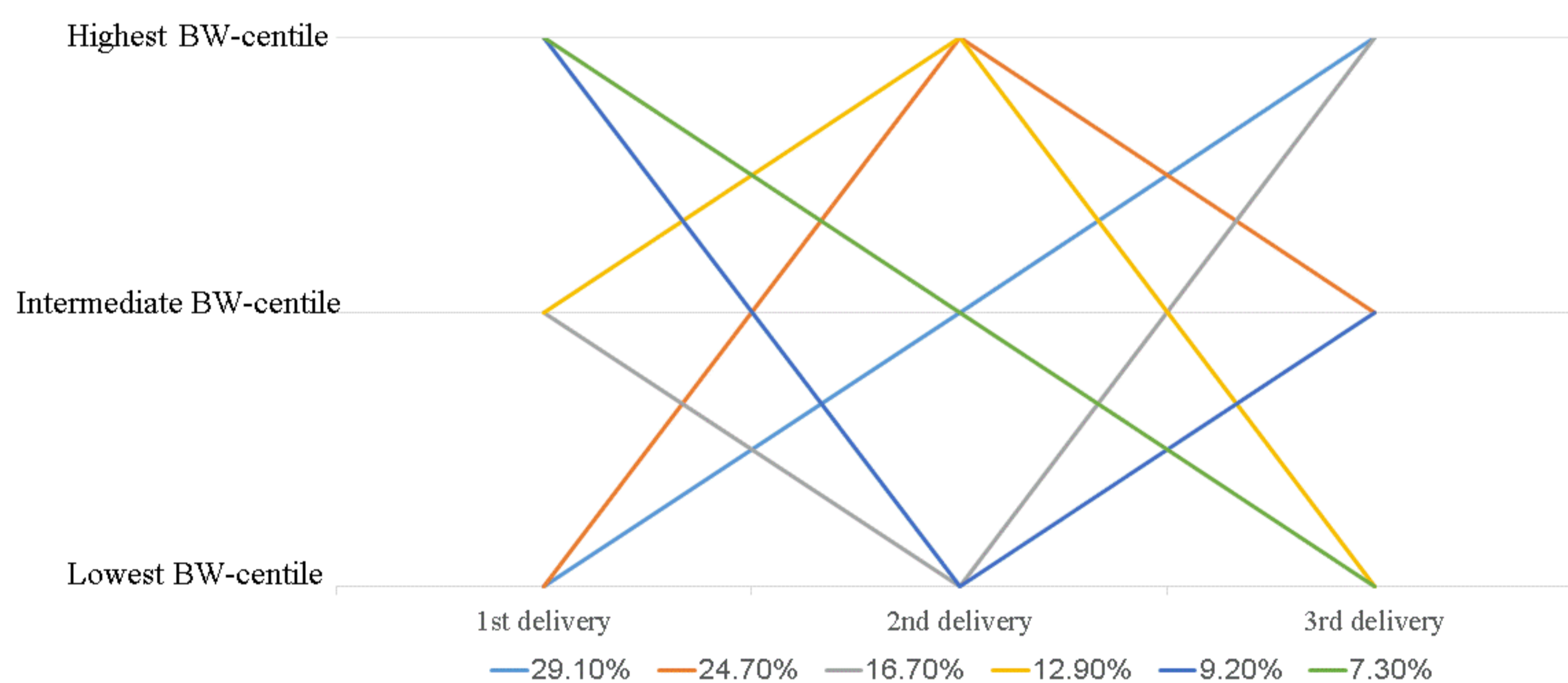
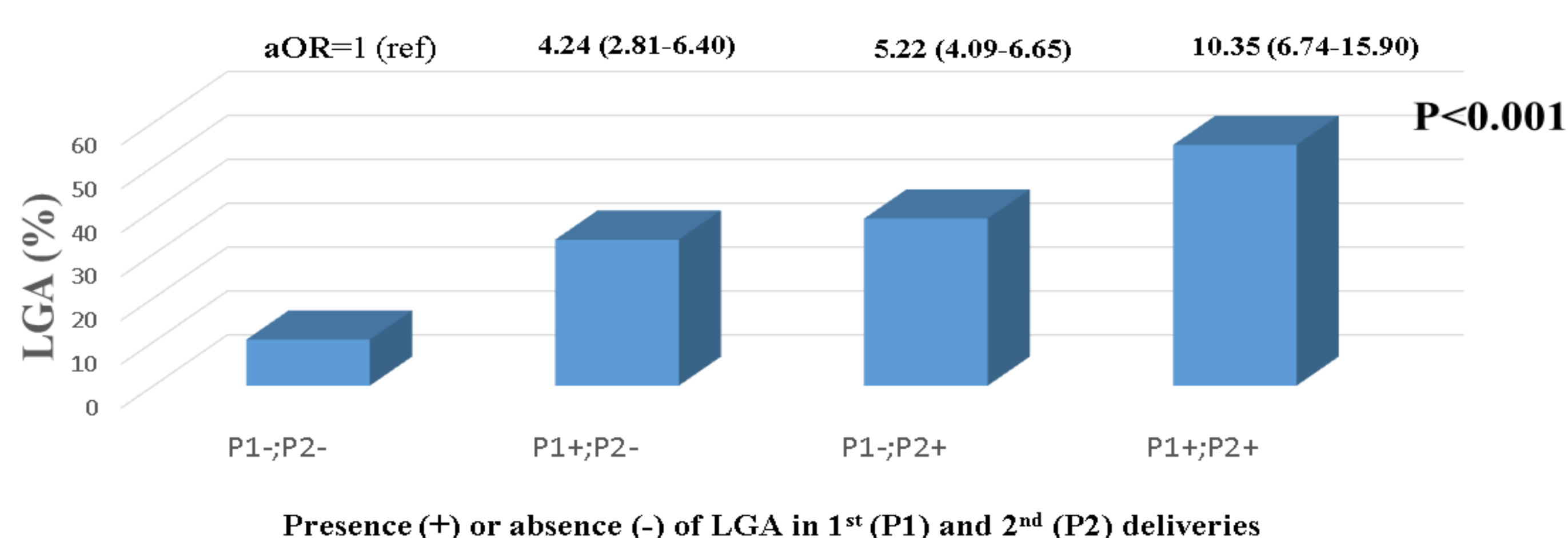


Figure 2: The rate of large for gestation (LGA, defined as birthweight >90th centile) stratified by obstetrical history of delivering LGA. The rate for delivering LGA in the 3rd delivery is associated with the number of previous LGA in a dose-dependent manner. Additionally, after controlling for maternal age at delivery, adjusted Odds Ratio (aOR) and 95% confidence interval for delivering LGA in the 3rd delivery is presented accordingly (P<0.001 for all).



Conclusions

In non-diabetic women with repeated term deliveries, BW-centile is frequently increased in the 3rd delivery compared to the previous 2 deliveries. Moreover, the number and order of previous LGA deliveries in the first two deliveries are major risk factors for LGA in the 3rd delivery.